Landscape Change in the National Parks of the Pacific Northwest

Project Title	Landscape Change in the National Parks of the Pacific Northwest
Project Summary	Learn about natural and anthropogenic disturbances affecting large national parks and surrounding areas in the Pacific Northwest by helping the Inventory & Monitoring Program staff of the North Coast and Cascades Network (NCCN) validate/label change polygons derived from Landsat satellite imagery.
Country	United States

Project Description

Landscape Change Monitoring Project (https://www.nps.gov/im/nccn/landscape.htm) uses Landsat imagery and LandTrendr algorithm (https://emapr.github.io/LT-GEE/landtrendr.html) in Google Earth Engine to map disturbances in North Cascades, Mount Rainier and Olympic National Parks and surrounding areas. Individual disturbance polygons are labeled with disturbance type (avalanche, landslide, riparian change, etc) using aerial photo interpretation and evaluation of disturbance spectral trajectories. Changes in number and area of different disturbance types are tracked over time to assess effects of extreme weather events and climate change on natural disturbance dynamics in protected areas. Advances in technology and processing techniques in recent years have allowed park staff to generate better disturbance maps. The first task for this project is to match disturbance polygons in the existing North Cascades National Park 1985-2009 spatial layer to the same ones in the new 1985-2018 layer generated using LandTrendr in Google Earth Engine. Attributes from the old layer need to be transferred to the new layer using tools in ArcGIS. The second task, time permitting, is to identify and document disturbance agents of newly mapped polygons using historical aerial photo interpretation in Google Earth application and review of polygon spectral trajectory in TimeSync application (http://timesync.forestry.oregonstate.edu/index.html). Student will have an opportunity to learn about natural disturbances in the Pacific Northwest and acquire aerial photo and Landsat image interpretation skills. Knowledge of ArcGIS and spatial data management skills are required.

Required Skills or Interests

Skill(s)
GIS expertise

Additional Information

For more information about Inventory & Monitoring Program see https://www.nps.gov/im/index.htm;
For more information about North Coast and Cascades Network see https://www.nps.gov/im/nccn/index.htm;

Language Requirements

None